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WASTEWATER MANAGEMENT STUDY FOR CLEVELAND - AKRON METROPOLITAN --ETC(U)
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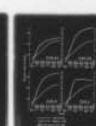
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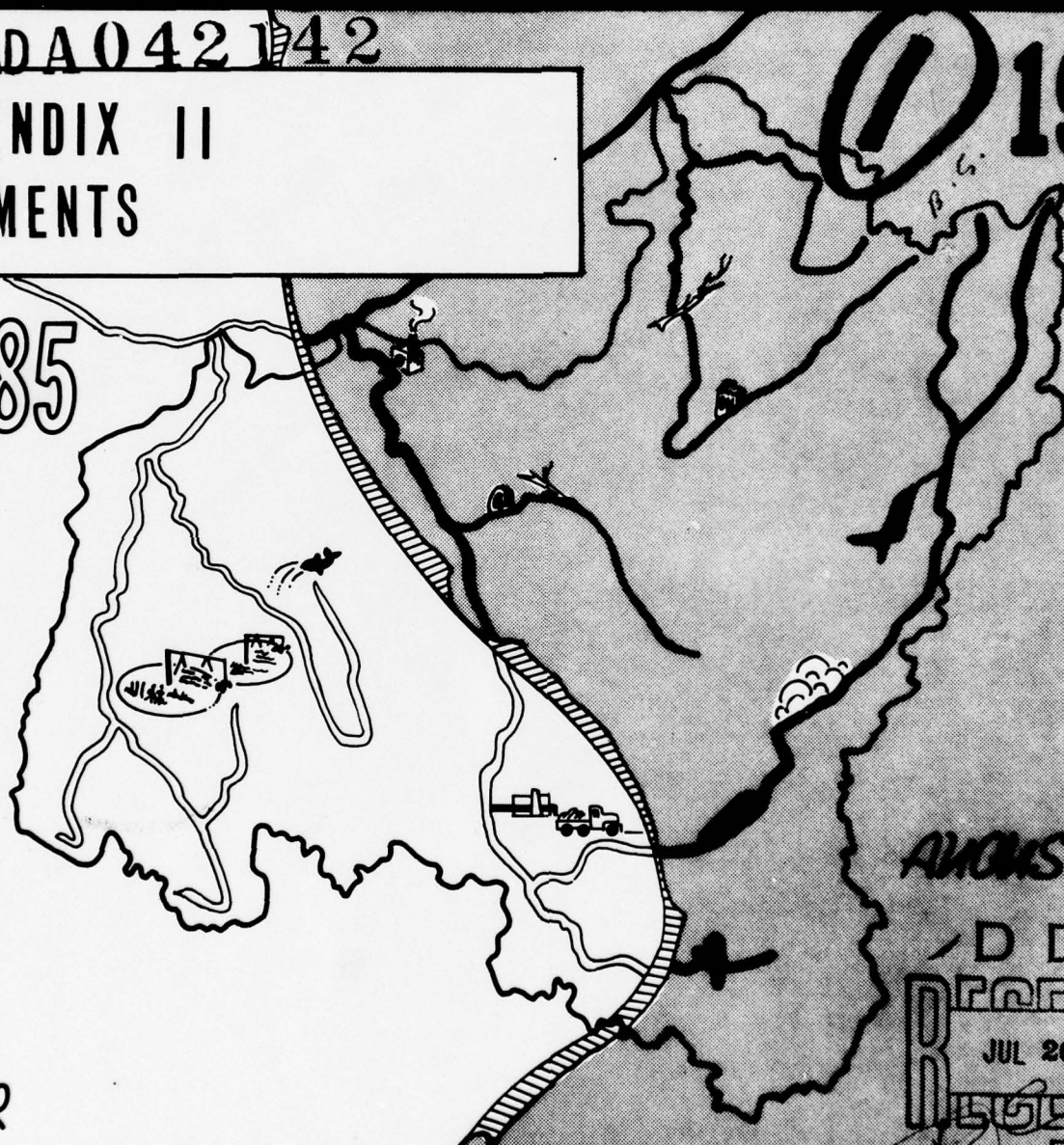
WASTEWATER MANAGEMENT STUDY

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APPENDIX II COMMENTS

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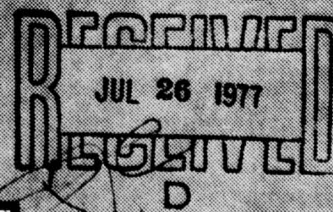
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AUGUST 1973

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FOR

CLEVELAND - AKRON METROPOLITAN

AND

THREE RIVERS WATERSHED AREAS

DDC FILE COPY

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⑥ Wastewater Management Study
for Cleveland-Akron Metropolitan and
Three Rivers Watershed Area.
Appendix II. Comments.

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B	Responses to Comments by the City of Akron

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COMMENTS

INTRODUCTION

The purpose of this appendix is to document the views of interested governmental agencies in Ohio based on their review of the draft report and the response of the Buffalo District to their comments. This appendix does not document the total coordination by the District with other interested governmental agencies during the conduct of the study. That coordination was achieved principally through an Interagency Coordinating Committee, consisting of representatives of the Federal, State of Ohio, and local agencies, presented in Table 1. In addition to the Committee meetings held throughout the study period, frequent communications with those specific agencies were made. In addition, briefings and workshops were conducted with city and county governmental agencies as specific areas were identified for consideration in the study. Appendix VIII documents those meetings.

The draft report was published on 19 May 1973. Of the 125 copies of the complete report distributed in Ohio, 80 were placed in public libraries to provide the public with access to them. The remaining 35 copies were provided to the State, regional, county and city governments upon which the report has a potential impact. An additional 2,400 copies of the Summary Report were distributed to interested organizations and Ohio citizens for their review.

- 1 -

COMMENTS

Reviews of the draft report were received through two media. The four final public meetings conducted during the period of 5 through 8 June 1973 provided a forum for comment by governmental agencies, public organizations, and citizens. All statements presented at those meetings are reported in Appendix VIII.

The second medium consisted of written responses to the draft report. Those responses included technical reviews by the governmental agencies and statements concerning acceptability by Ohio citizens. The large number of citizen responses are reported in Appendix VIII, and they are not repeated here.

The following governmental agencies provided written review of the draft report before 15 September 1973:

1. Ohio Environmental Protection Agency and Department of Natural Resources (combined review)
2. Three Rivers Watershed District
3. Board of County Commissioners-Huron County
4. Huron County Department of Health
5. Summit County Sanitary Engineers
6. The City of Akron
7. City of Olmsted Falls

The comments of these governmental agencies are presented in Attachment A of this Appendix.

TABLE 1

INTERAGENCY COORDINATING COMMITTEE

Federal

Environmental Protection Agency
U. S. Geological Survey
U. S. Department of Housing and Urban Development
Soil Conservation Service

State

Ohio Department of Development
Ohio Department of Health
Ohio Department of Natural Resources
Ohio Environmental Protection Agency

Local

Three Rivers Watershed District
Northeast Ohio Areawide Coordinating Agency

RESPONSES

The majority of the comments received addressed only the Summary Report. However, the City of Akron specifically addressed comments to Appendix IV, Industrial Wastewater.

In response to the comments by the City of Akron the industrial consultant contacted city officials to resolve any discrepancies between their data. The consultant's explanation of the resulting changes in Appendix IV appears in Attachment B of this Appendix.

Additional comments by the City of Akron resulted in revisions in Appendix VI, Evaluation, and in the Summary Report. Explanations by the evaluation consultant and the Buffalo District appear in Attachment B.

The central theme of the comments by the Summit County Sanitary Engineers appeared to be expression of concern for the lack of conformity between the early stages of the implementation plans in the draft report and the immediate plans of the communities within Summit County.

The communication for the City of Olmsted Falls, pointing out the recent merger of the Villages of Olmsted Falls and Westview, serves to emphasize the continuous change taking place in the Three Rivers Watershed Area. Wastewater management plans must be flexible to be compatible with the region's changing character. Plans A-I,

A-II, B, and C provide that flexibility to the residents of the Three Rivers Watershed Area.

Unfortunately, the comment from Olmsted Falls arrived after the printing of the affected Appendices, but this and other changes in the character of the region are being considered as the State of Ohio continues to review the wastewater management plans of the area.

The discrepancies between local future plans and the configurations displayed in the report stem principally from the configuration of the wastewater management system contained in the Northeast Ohio Water Development Plan. The Summary Report clearly establishes the Northeast Ohio Water Development Plan as the basis for the alternative plans displayed there, and that Plan was developed by the State of Ohio with the cooperation of the local and regional agencies.

Furthermore, the Summary Report identifies critical times for decisions regarding the direction the state and local agencies may take to approach the 1985 goal of Public Law 92-500. By 1975 that direction should be established, if the goal is to be met. The purpose of this report is to identify the cost, the effectiveness, and the environmental impacts associated with alternative wastewater management plans; the state and local governments should cooperatively select among the alternatives or their components, in light of those factors. Selection of a system of dispersed advanced waste treatment

facilities was shown in the Northeast Ohio Water Develop Plan to be more costly than a system utilizing more centralized facilities.

Comments by the Huron County Department of Health centered upon what they considered to be potential adverse impacts upon the agricultural communities within prospective land treatment areas in Northcentral Ohio. The concerns identified by the Department of Health, and many others expressed by the public in Northcentral Ohio, were the subject of a special agricultural evaluation study. That study was underway but not complete at the time of the draft report. The report of that study appears in Appendix IX.

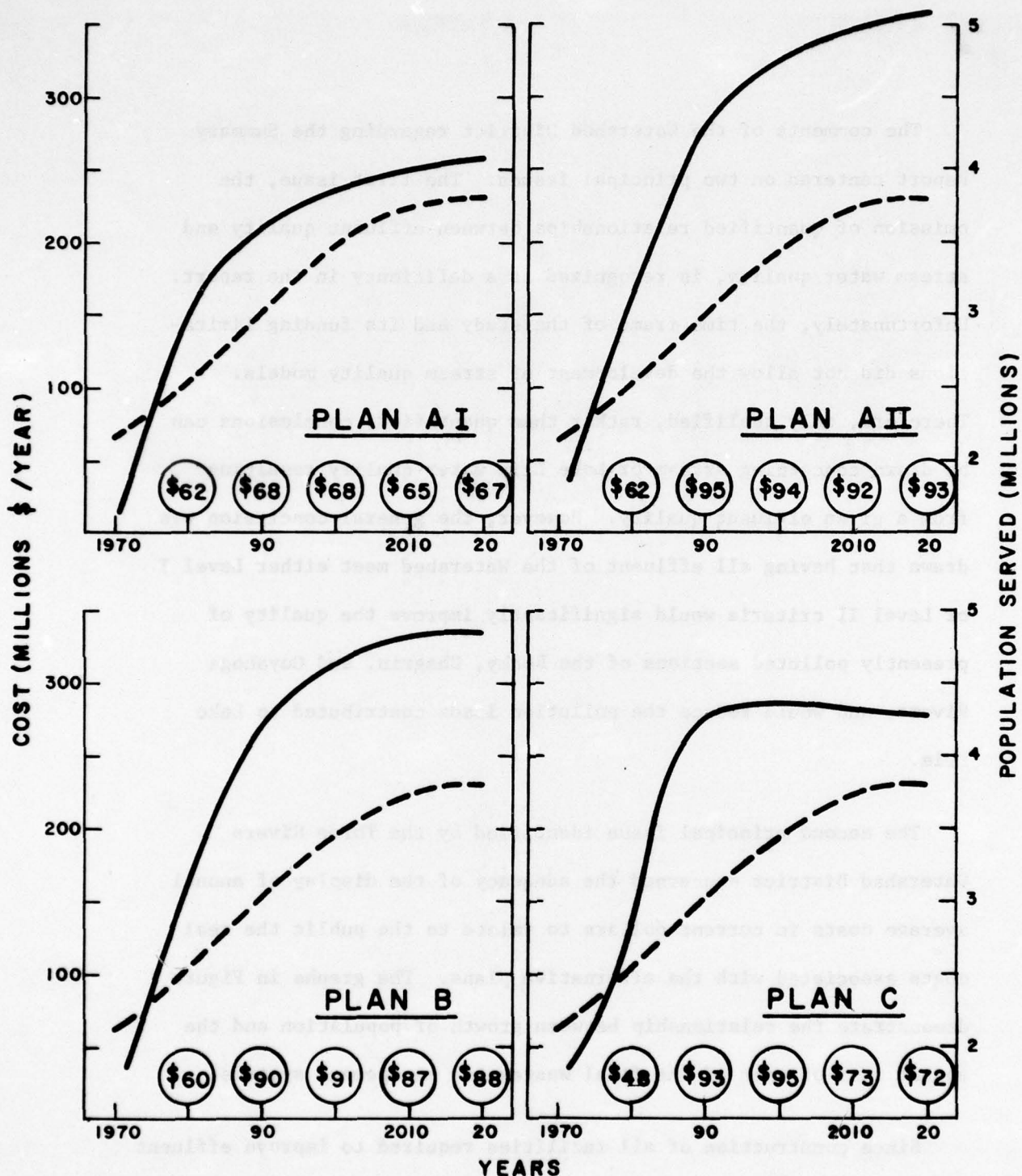
The Huron County Board of Commissioners' communication simply underscored the expressions of opposition to the involvement of Huron County in any plan for land treatment of Cleveland wastewater. The perceptions and concerns of those citizens are documented in Appendix VIII, and integrated into the conclusions of the Summary Report.

Comments by the Three Rivers Watershed District addressed the Summary Report and Appendix VII, "Institutional Evaluation." Since the District was provided advance copies of the report, the comments regarding Appendix VII were forwarded to the consultant prior to publication of the draft and appropriate revisions were made in that Appendix.

The comments of the Watershed District regarding the Summary Report centered on two principal issues. The first issue, the omission of quantified relationships between effluent quality and stream water quality, is recognized as a deficiency in the report. Unfortunately, the time frame of the study and its funding limitations did not allow the development of stream quality models. Therefore, only qualified, rather than quantified, conclusions can be drawn concerning stream or Lake Erie water quality resulting from a given effluent quality. However, the general conclusion was drawn that having all effluent of the Watershed meet either Level I or Level II criteria would significantly improve the quality of presently polluted sections of the Rocky, Chagrin, and Cuyahoga Rivers, and would reduce the pollution loads contributed to Lake Erie.

The second principal issue identified by the Three Rivers Watershed District concerned the adequacy of the display of annual average costs in current dollars to relate to the public the real costs associated with the alternative plans. The graphs in Figure 1 demonstrate the relationship between growth of population and the annual cost of each of the final wastewater management systems.

Since construction of all facilities required to improve effluent quality are scheduled prior to 1985, the additional annual costs in 1990 and beyond will result principally from expansions necessitated by



----- POPULATION
 ——— ANNUAL COST

(\$62) PER CAPITA PER YEAR

GROWTH OF POPULATION AND COSTS

FIGURE I

increased population and component replacement. The average annual per capita costs for the four plans during the period of 1990 through 2020 are \$67 per year for Plan A-I, \$96 per year for Plan A-II, \$89 per year for Plan B, and \$81 per year for Plan C.

The average per capita costs depicted above must not be interpreted as actual sewer charges. The actual residential sewer charges will depend upon the surcharge rate applied by the municipalities to industrial dischargers and the extent of recycling achieved by industry, which may result in reductions in residential charges as much as 30 percent. In addition, the proportion of the sewer charge which is attributed to the installation and maintenance of local collection systems, which discharge into major transport trunk sewers, are not reflected in these costs.

The comments of the State of Ohio Environmental Protection Agency and Department of Natural Resources were incorporated into the Summary Report as the Recommendations Chapter. This action demonstrates the respective roles of the Corps of Engineers and the State Government; the Buffalo District performed as a planning consultant to the State, with their cooperation, and it is the responsibility of the State, with local cooperation, to establish the direction of wastewater management for the Three Rivers Watershed area.

ATTACHMENT A
COMMENTS OF AGENCIES IN OHIO

City of Olmsted Falls

FOUNDED IN 1814
9722 COLUMBIA ROAD
OLMSTED FALLS, OHIO 44138

Planning Commission

216 235-5550

ERWIN M. LAUFFER, CHAIRMAN
ROY E. HAMEL
HENRI S. RIGO
W. HOWARD SCOTT
MARILYN Q. SPARKS

September 14, 1973

Colonel Robert Moore
Corps of Engineers
Buffalo District
1776 Niagra Street
Buffalo, New York 14207

Dear Colonel Moore:

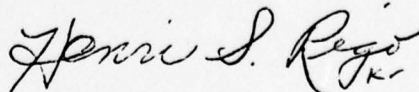
Our Planning Commission has reviewed with interest your May, 1973 Summary Report on the Wastewater Management Study for Cleveland, Akron, Metropolitan and Three Rivers Watershed Areas.

We should like to inform you that the Villages of Olmsted Falls and Westview merged in 1972 to form the City of Olmsted Falls. Please correct this in your final report.

We request that our library be placed on your mailing list. The address is: Olmsted Falls Branch Library, 7850 Main Street, Olmsted Falls, Ohio, 44138.

We look forward to receiving the final draft.

Sincerely yours,



Henri S. Rigo,
Chairman
OLMSTED FALLS PLANNING COMMISSION

KAR

cc:
Olmsted Falls Library



DEPARTMENT OF PUBLIC SERVICE

203 MUNICIPAL BUILDING / 375-2270

DAVID W. ZIMMER
SERVICE DIRECTOR

JACK CARLTON
ROY L. RAY
DEPUTY DIRECTORS

June 15, 1973

Mr. Donald M. Liddell
Chief Planning
Buffalo District Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Mr. Liddell:

The City of Akron has reviewed the Draft "Wastewater Management Study for Cleveland - Akron Metropolitan and Three Rivers Watershed Areas" and feel that some comments should be made concerning the content of the report.

In the Summary Report, it is stated that Lake Rockwell severely limits the flow of the river and in extremely dry weather permits no flow. The fact is that the Lake Rockwell drainage area is approximately 200 square miles or one-quarter of the total 813 square mile Cuyahoga River Drainage Basin. Therefore, the impoundment of water could only reduce the flow in the river by one-quarter and could not result in no flow in the river.

The drainage area from below Lake Rockwell to Akron's North corporation line is also 200 square miles, and the amount of drainage from this area should be nearly equivalent to that of the upper Cuyahoga. Also, the report's "Existing Industrial Waste Loads", Table F-I indicates that 87.7 million gallons per day (MGD) of cooling water and 1.70 MGD of process water is discharged to the Cuyahoga River from the Akron Sewer District. This total discharge exceeds the amount of water withdrawn from Lake Rockwell for 1970 by approximately 42 MGD.

The City of Akron objects to the statement in the report that the river is adversely affected by waste sludges from the Akron Water Treatment Plant. It has been more than eight years now since the City corrected this problem. We anticipate that our calling it to your attention will be sufficient to have it removed from the report.

The report states that between Lake Rockwell and Akron the Cuyahoga River is adversely affected by heated effluent from a fossil fueled power plant, but Table 12, Item No. 2, shows that the Water Quality Standards from Lake Rockwell to State Route 17 for temperature are acceptable.

June 15, 1973

In the report the following sentence appears: "Within Cleveland, domestic and industrial wastewater drastically alter the normal physical and biological characteristics of the river." Also, the report states: "This stretch is characterized by the absence of dissolved oxygen in summer low-flow periods . . .", but Table 12, Item No. 3, indicates that the Water Quality Standards from State Route 17 to the Coast Guard Station for dissolved oxygen are acceptable.

The report refers to treatment to reduce bacterial contamination of sludges from biological processes preceding the application of these sludges to agricultural lands. The existing biological treatment processes in the study area have primary sedimentation as one of their processes. The report does not state what is going to be done with these primary sludges and how they will be treated to reduce bacterial contamination.

In Plans A, AI, and B, it is stated that the sludge from the Akron plant will be vacuum filtered and trucked to agricultural land. Presently, we do not vacuum filter our biological sludges, and therefore, it would require the installation of digesters and vacuum filters in order to comply with these plans. These plans indicate that our newly constructed wet air oxidation units, at a capital cost to the taxpayers of Akron of 4 million dollars, would be shutdown after only one year of operation.

In Plan A to Level II and Plan B, the Akron plant is going to be an advanced biological treatment plant. In Table 27 and Table 32, the sludge volumes for disposal from the Akron plant are not consistent with a statement made earlier in the report. A value of 0.73 tons of sludge per million gallons of wastewater treated is used in both tables for an advanced biological treatment plant.

Last, under the preference sets for choice among alternative plans by the residents of the Three Rivers Watershed and the rest of Ohio, it is stated that in order to choose Plan A to Level I over all other plans, residents must be willing to allow Ohio stream quality standards to be violated in the navigation channel of the Cuyahoga River. It can be surmised from the data in the report on the lower Cuyahoga River, prepared for the Cleveland Clean Water Task Force, that even with the elimination of all point source pollution loads in the river basin the navigation channel could not meet existing Ohio stream quality standards for dissolved oxygen.

We would further like to comment on "Appendix IV, Industrial Wastewater Part I and II." The statement that "Data collected by the City of Akron closely agreed with values used in this study when allowance was made for pretreatment processes operated by the rubber companies" is incorrect.

Our review of these two volumes indicates that the values attributed to the rubber industry, SIC No. 3011, are wrong and their presentation in the report is misleading. Recently, the U.S. Environmental Protection Agency has

June 15, 1973

contracted for studies on the raw waste load from tire plants and Roy F. Weston, Inc., has determined raw waste load values for tire plants, which are significantly different than those published in Table D-XII.

Further, it is apparent that the report has combined the industries in SIC No. 2822 with those of SIC No. 3011. We object to the values as presented in the report and have sufficient documentation to prove these values to be erroneous and their presentation in the report misleading.

Part I of "Industrial Wastewater, Appendix IV" concerning SIC Nos. 72 and 75 states that much of the water used in the cleaning industries is re-circulated. The City of Akron has no knowledge of any laundry or Laundromat under our jurisdiction that recirculates their dirty wash water. Further, our analyses of SIC No. 7211 and 7215 would indicate that Table D-XIV understates the true raw waste load of this industry by a factor of 10.

Table F-I, "1970 Raw Waste Loads for the Cuyahoga River Basin", indicates the number of pounds per day of certain contaminants discharged to the Akron Water Pollution Control Station. These values, as presented, represent that about 80 percent of the biochemical oxygen demand, chemical oxygen demand, and suspended solids discharged to the Akron Water Pollution Control Station are from industry. Our industrial sampling and analysis indicates that the raw waste load from industry is much less than this percentage figure.

In "Appendix IV, Industrial Wastewater, Part II", the section on "Treatment of Rubber Industry Wastewaters" is in conflict with the U.S. Environmental Protection Agency's determination that to reach Level I standards, high quality housekeeping is all that is needed by the rubber industry. To meet Level II standards, it is felt that filters would be required to reduce the contaminants to the required levels. It is apparent that the report has again mixed latex industry wastewater, SIC No. 2822, with that of the rubber industry, SIC No. 3011.

Table G-3, "Metals Discharged to Sewer Systems After Pretreatment", contains contaminant loads that are significantly different than those values for copper, chromium, cadmium, lead, and zinc that have been monitored in the influent of the Akron plant. Also, the contaminant load for silver in the year 2020 has increased to 9.90 pounds per day from the 1990 figure of 0.81 pounds per day, and an explanation for this greater than 10 fold increase should be included in the report.

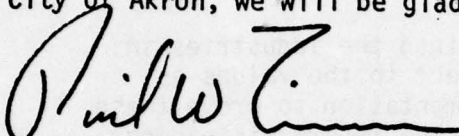
In Table G-4 and G-5 under the subheading Sewer District appears the title "Summit Uns.J". The footnote j states: "Flows to be included in Barkerton (sic) and Cuyahoga Falls by 1980." Our first comment is that the City of Barberton is not in the Three Rivers Watershed area, and therefore, those industrial flows should be removed from the table. Also, the City of Cuyahoga Falls is not listed as a municipal sewer district in the table; therefore, the industrial flow should not be included in their 1980 municipal flow.

Mr. Donald M. Liddell

- 4 -

June 15, 1973

We request that these obvious errors on the part of the Corps of Engineers and its consultants be corrected to communicate to the public the situation as it exists. If you should choose to consult with officials from the City of Akron, we will be glad to go over these matters with you.



David W. Zimmer, Director
Department of Public Service

jmr

cc: Mr. H. William Sellers
Congressman John Seiberling
Mr. George Watkins
Mr. Arthur F. Woldorf



John J. Garner, P.E.
Sanitary Engineer

SUMMIT COUNTY SANITARY ENGINEERS

19 NORTH HIGH STREET, AKRON, OHIO 44308 • Phone (216) 379-5660

BOARD OF COMMISSIONERS

Richard E. Slusser
Thurman E. Cole
Don M. Stephens

JJG-0673-341

June 19, 1973

Colonel Robert Moore
Department of the Army
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Re: Wastewater Management Study

Dear Colonel Moore:

Thank you for the opportunity of expressing our comments on the draft copy of the "Wastewater Management Study for the Cleveland-Akron Metropolitan and Three Rivers Water Shed Area" at the hearing on June 7, 1973. For the record, we would like to summarize our comments as follows:

1. From a practical point of view, the wastewater treatment plants presently owned and operated by Summit County will have to provide advanced or tertiary treatment in order to meet proposed Ohio EPA effluent requirements. Wastewater treatment plants being designed at the present time will provide advanced wastewater treatment or tertiary treatment. Therefore, it does not appear that land disposal can be an immediate alternative method to providing advanced wastewater treatment at wastewater treatment plants.
2. We note that the Study refers to twenty six wastewater treatment plants in the Three Rivers area. It appears that more plants are going to be required, certainly in Summit County, than are presently recommended. There appears to be a serious question as to the extent of the area that should be served by the Cleveland Southerly Wastewater Treatment Plant. We note that Bedford, Bedford Heights and Solon in Cuyahoga County are proceeding to improve their wastewater treatment plants so as to satisfy their own water pollution control needs. Therefore, it is very doubtful whether the Tinkers Creek portion of the Cuyahoga Valley Interceptor will ever be constructed. If that portion is not constructed, then Summit County feels that the Twinsburg Wastewater Treatment Plant should be the regional wastewater treatment plant for those portions of Summit and Portage Counties that could logically use it.

Summit County is proceeding with the detailed design of the proposed Fish Creek Wastewater Treatment Plant that would discharge into the Cuyahoga River near Fish Creek. At the present time, Portage County has indicated a definite interest in having Franklin and Brimfield Townships served by that plant. In the past, planners have conceded that the Kent Wastewater Treatment Plant would not be expanded and has site space limitations.

A study of the northwest portion of Summit County recommends that a new wastewater treatment plant be constructed along the Cuyahoga River near Brandywine Creek. This plant would serve the Richfield area, the area served by the present Macedonia Plant #15 and also the Hudson Village-western Hudson Township area. This study has been submitted to the Ohio EPA for their review and approval.

Summit County has recently expanded and improved the Hudson Plant #6 that discharges into Powers Brook. This Plant presently has the micro-strainer form of tertiary treatment. At this time, we are unaware of circumstances that would lead the County to abandon this plant.

3. Recognizing the immediate need to provide the sophisticated wastewater treatment plants mentioned above, we would like to respectfully suggest that future Corps studies concentrate on sludge disposal rather than liquid disposal. The adequate treatment and disposal of sludge from wastewater treatment plants remains a major waste disposal problem, if not the major problem.
4. We share your concern that definitive stream models have not been developed for the streams in Ohio in general and for the major streams in the Three Rivers area. We are concerned that past planning efforts have not been designed so as to determine exact treatment plant effluent requirements.
5. It is not readily apparent to us after a quick review of the summary report as to whether the recommended alternative will actually produce an Aquatic A condition in the navigation channel of the Cuyahoga River.
6. We note that the probable preferred alternative in the "Wastewater Management Study" would result in an annual cost to an individual home of approximately \$300 to \$400. This cost would be in addition to other annual costs such as the construction of local sewers, trunks, etc. Although the public appears to be desirous of having "clean streams", we wonder whether the public is prepared to pay the bill that would be necessary in order to obtain those "clean streams." Considering the past history of significant delays in allocating and disbursing federal water pollution grant monies to the states and local communities, we also wonder whether such an extensive and complex program as presented in this study would be adequately funded on the federal level.

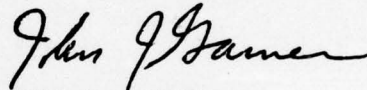
Colonel Robert Moore
Re: Wastewater Management Study

Page 3

In summary, we feel that the practicalities of satisfying immediate state and federal regulatory agency requirements will demand the construction of several additional wastewater treatment plants that will provide advanced waste treatment. Therefore, we are respectfully suggesting that your future study efforts concentrate on the sludge disposal problem associated with these plants.

Thank you for the opportunity to present these remarks.

Very truly yours,



JOHN J. GARNER
SUMMIT COUNTY SANITARY ENGINEER

JJG/deb

CC: Board of Commissioners
File (4)

Dr. Ira Whitman, Director of Ohio Environmental Protection Agency
Douglas C. Hasbrouck, Northeast District Office, Ohio EPA
William P. Sellers, Chief of the Planning Section of the Ohio EPA
George Watkins, Three Rivers Water Shed

HURON COUNTY
DEPARTMENT OF HEALTH

Courthouse

Norwalk, Ohio 44857

GEORGE F. LINN M.D.
HEALTH COMMISSIONER

June 26, 1973

TELEPHONE 668-4911

Col. Robert Moore
U.S. Army Corp of Engineers
Buffalo District
1776 Niagara Street
Buffalo, N. Y. 14207

Dear Col. Moore:

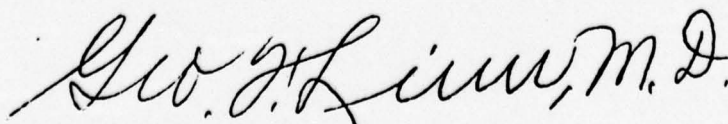
We have followed, with interest, your progress in the Three Rivers Watershed Study, and needless to say, are relieved and grateful that the land disposal method in the Willard area has been shelved for the time being.

The unanimous feeling of the Huron County Board of Health and staff is the same as expressed in our letter of January 11, 1973 to Dr. John W. Cashman, Ohio Director of Health, of which you have a copy. Until better answers to the following questions are known, we feel it is a great mistake to go ahead with such a radical departure from conventional methods of treatment. To repeat, our concerns are as follows:

1. Just what will the sociological impact be on the community involved?
2. What will the agricultural impact be? Type of crops, economic aspects, etc.?
3. What new kinds of organisms would find this a desirable habitat? Bacteria? Other micro-organisms? Parasites? Insects?
4. What changes might occur in the climate itself?

Until sufficient pilot programs have been run to explore thoroughly these and other problems, we are firmly opposed to going ahead with any further plans in this regard.

Very truly yours,



George F. Linn, M. D.
Commissioner of Health

**HURON COUNTY
DEPARTMENT OF HEALTH**

Courthouse

Norwalk, Ohio 44857

**GEORGE F. LINN M.D.
HEALTH COMMISSIONER**

January 11, 1973

TELEPHONE 668-4911

John W. Cashman, M. D., Director
Ohio Department of Health
450 East Town Street
Box 118
Columbus, Ohio 43216

Re: Three Rivers Wastewater Study

Dear Doctor Cashman:

You are no doubt somewhat familiar with the U.S. Army Corps of Engineers' development of twelve alternate plans for waste water treatment, initially from the City of Cleveland, but possibly ultimately from other cities.

Six of these plans propose pumping some . . . millions of gallons of secondary wastewater plant effluent southwest to an area where the three counties, Huron, Seneca and Crawford join; where it will be lagooned, and over about six months out of the year, sprayed or otherwise distributed over farmland, at a rate of about 2" per week. This would put more water on the land in six months than now falls in an entire year, and would take up to 237,000 acres - 3/4 of the area of Huron County. The tremendous cost of such a project would allegedly be recovered in the value of fertilizer materials in the water.

Needless to say, this proposal has our entire farming community in an uproar, to say nothing of the senses of the rank and file citizens who are offended by the thoughts of having Cleveland's dirty water dumped on our greatest asset - our land.

Among those concerned are our Board of Health. A considerable time was spent at the last meeting discussing it. There doesn't seem to be much quarrel with the concept of using waste water on land - in moderation and as may be profitably utilized. But, it boggles the imagination to think of putting an extra 52" per year on our land when 8" extra this year has made it a disastrous year for farmers. It most certainly would have an impact of some kind on agriculture, perhaps a switch to rice as a cash crop.

We are particularly concerned about the impact on Health -

What new kinds of organisms would find this a desirable habitat?
Bacteria? Other micro-organisms? Parasites? Insects?

What changes might occur in the weather itself?

What effect on stream water quality due to erosion?

These are just a few of the things that come to mind. We urge that all public agencies involved insist on adequate research being done, and pilot programs run, on our types of soils and climate, to get answers to these and other questions before any final decisions or large commitments of money, are made. To do otherwise, could, we feel, result in a disaster of tremendous magnitude, and do irreversible damage.

We are simply passing our concern on to you as the leading health spokesman for Ohio, and urge that you and your staff develop all possible means to study the proposals from a Public Health viewpoint.

Very truly yours,

George F. Linn, M.D.

George F. Linn, M. D.
Commissioner of Health

GFL/r

c. W. B. Nye, Director
Ohio Department of Natural Resources

Dr. Ira L. Whitman, Director
Ohio EPA

Col. Robert Moore
U.S. Army Corp of Engineers

The Honorable John J. Gilligan
Governor of Ohio

The Honorable Ethel Swanbeck

The Honorable Robert J. Corts

Mr. John Wells
Cooperative Extension Service

Mr. C. B. Roscoe
Regional Planning Director

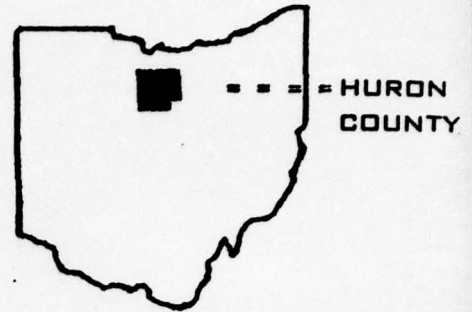
Representative, State of Ohio (13th Dist.)
Senator, State of Ohio (13th Dist.)
Chairman, Ohio State Board of Health

Arthur F. Herner

Donald Robertson

Maurice Smith

**BOARD OF
COUNTY COMMISSIONERS**



Meetings: Monday and Thursday

TELEPHONE 663-4271

NORWALK, OHIO 44857

2 July 1973

Dear Colonel Moore:

Again, we do appreciate your very intelligent approach to all the facets of the land treatment of wastewater from the Cleveland-Akron Metropolitan area in the portion of HURON and other north central Ohio counties. Senator Saxbe has also expressed his appreciation for your services.

We received the enclosed PETITION from Thornton & Thornton, Attorneys, Willard, Ohio- which we understand has been circulated in Crawford County. We have added our signatures and offer it for your files.

Please feel free to stop by anytime you are in our vicinity.

Very sincerely,

Arthur F. Herner

ENC

Colonel L. Moore, Corps of Engineer
District Engineer, Department of the Army
1776 Niagara Street, Buffalo, New York 14207

*inc
Feds*

Thornton & Thornton
Attorneys at Law
118 1/2 Myrtle Avenue
P. O. Box 201
Willard, Ohio 44890
Telephone (419) 935-0171

August 2, 1973

Mr. Arthur F. Woldorf
Watershed Planning
Department of Natural Resources
65 S. Front St.
Room 805
Columbus, Ohio 43215

Re: Wastewater Management Study For the Cleveland-
Akron Metropolitan And Three Rivers Watershed
Areas

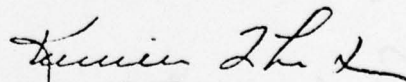
Dear Mr. Woldorf:

I am enclosing herewith 48 petitions signed by 815
interested people stating opposition to the implementation of
Plan C and to any other plan or program whereby waste materials
would be transported to the counties of Huron, Crawford or
Seneca.

Please keep me informed of developments.

Very truly yours,

THORNTON & THORNTON


Kenneth Thornton

KT/pw
encl.

cc. H. William Sellers, Chief Planning
Ohio Environmental Protection Agency
395 East Broad Street
Columbus, Ohio 43215

Donald M. Liddell, Chief Planning
Buffalo District Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

We, the undersigned, hereby give Notice of our opposition to the implementation of Plan C as promulgated by the U. S. Corps of Engineers in its wastewater management study for the Cleveland-Akron and Three Rivers Watershed Areas and to any other plan or program whereby sewage, waste materials or second stage effluents would be transported to the counties of Huron, Crawford and Seneca, or any of them.

COUNTY

Donald Johnston Co Comm. Huron
Maurice S. Smith Co Comm. Huron

THREE RIVERS WATERSHED DISTRICT

**621 ~~xxxx~~ SUPERIOR BUILDING
CLEVELAND, OHIO 44114**

Telephone: 621-1126

May 8, 1973

Colonel Robert L. Moore
Department of the Army
Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Colonel Moore:

Because of the report's comprehensiveness, our review of your draft report on the Wastewater Management Study will have to be in sections.

As to Appendix VII, the consultants appear to have responded to my letter to you of December 29, 1972 in Parts IV and V which were the reports we originally reviewed for you.

In their final evaluation in Part VI, however, they revert (on page 12, paragraph 2) to the concept that the District "lacks specific authority for wastewater management planning." Most of our work has been specifically on wastewater management planning.

Since this portion of their report is probably the most likely to be read, we respectfully request the phrase be changed to "but currently lacks authority for implementation or enforcement of such plans." This is really the issue they are trying to bring out and it is true.

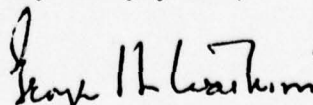
I have already commented on the next following paragraph in my December 29th letter and am sorry to see they did not come to grips with the comments.

Their discussion on "The Regional Approach" that follows the above discussion of The Local Approach appears to be an effort to overcome a rather inadequate discussion of regional institutional needs in the earlier drafts.

It seems to me you said on page 112 of the Draft Summary Report what they conceptually discussed under Regional Approach and you said it more clearly and succinctly.

We may have more to say on these management issues as we move along with our review. Management is clearly a key issue.

Very truly yours,



George H. Watkins
Secretary-Treasurer

THREE RIVERS WATERSHED DISTRICT

621 ~~1217~~ SUPERIOR BUILDING

CLEVELAND, OHIO 44114

Telephone: 621-1126

June 4, 1973

Colonel Robert L. Moore
Department of the Army
Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Colonel Moore:

You have asked for a response to the May 1973 draft Summary Report of the Wastewater Management Study in a time frame that necessitates inadequate consideration of this tremendously complex study. I venture to say that at this point in time no one fully understands it or its implications. Our reading of local understanding indicates a long period of digestion will be needed and we strongly recommend that adequate time be given before attempts are made to reach critical decisions based upon it.

Of necessity we will limit our comments at this time to features that seem to us important and we will omit comments on many aspects of the Summary Report with which we disagree or are not in full accord.

Chapter 1; Purpose: We have already commented (Nov. 27 and Dec. 26, 1972) on the failure of the study to differentiate among the N. E. plan and plans of level I and level II as to conditions that will in fact result in the streams. Unfortunately the similar idea, that higher levels of nutrient recovery, above already high levels planned, will "maximize the enhancement of commercial and sport fisheries, and water based recreation" in Lake Erie, gets carried into the Preference Sets with no evidence to support it. Thus we continue to feel that a principal purpose of "assessing the impacts" of the plans on water resources falls seriously short of its goal.

A second purpose was to formulate plans to achieve a "range of effluent water quality." Tables I and II (pgs. 22 and 24) show level I and II effluent criteria. It is interesting to note that the only indicated differences between levels I and II are reported as 3 mg/l of suspended solids and 1 mg/l of ammonia. In the appendix which details the anticipated results of the water based treatment schemes actually used in the study, these differences narrow to 2 mg/l suspended solids for biological systems and 1 mg/l for physical chemical and to a trace of ammonia in biological systems and .5 mg/l for physical chemical. These results do not appear to represent much range.

The largest difference between levels I and II seem to deal with nitrogenous materials, the total of which are reduced from 17.2 to .7 mg/l, in level II over I biological systems, and with chemical oxygen demand which is reduced from low to lower levels. Since it is phosphorous that has been associated with adverse eutrophication phenomena in Lake Erie, one can't help but wonder

Colonel Robert L. Moore

June 4, 1973

Page 2

what water resource virtues are related to this expensive difference between levels I and II. A third purpose, we realize, was to go to a "no discharge" level and perhaps it is enough to learn that no specific gains are shown in the Study in our streams and lakes by doing so and at high cost.

Chapter 1; Authorities: We were sorry to see the less than candid explanation in this section which now sounds as though the State asked for the planning and it was done in close cooperation with Federal EPA.

Chapter 1; Study Evolution: There is an historically interesting implication in here that broadly based water resource planning started either with the Federal EPA in 1970 or 1971 or with the Corps in 1970. Ohioans may feel rightly put out by the comment since they recognized the need for broadly based water resource planning in the late 1950's and provided the enabling Watershed District legislation in the early 1960's.

Chapter 1; Study Scope: The report states that the wastewater problems identified in the Three Rivers Watershed District have "an effect on the rest of Ohio" and the "rest of the nation." It does not, however, state what these problems are or what their effects are. Frankly, we doubt both claims, except, of course, as such areas contain Federal taxpayers whose funds will help us as ours help them.

We have commented before that the study really does not allow a "choice among alternatives" in terms of actual results in the rivers, so the choice must presumably be made blind in this regard.

Chapter 2; Specific Study Objectives: On page 21, reference is made to the N.E. Ohio Water Development Study which displays a plan "to meet existing State standards." In the next paragraph reference is made to criteria for "existing standards," but the following paragraph, correctly we think, indicates the second "existing standards" are different from the first. Perhaps a time designation for the N.E. Plan standards would clarify the matter, or better a Table showing the differences.

Chapter 2; Planning Process: On page 25 and 27 it is said that the State of Ohio and Federal EPA will select the wastewater management plan for the District, the second reference giving passing acknowledgement to "public opinion." Although it is true that tax dollars in Federal EPA hands give them tremendous leverage and also true that the State is using this leverage, I think the public will determine in the final analysis both how far and how fast they are willing to go. This is why we have stressed as the Study has progressed that it is important for people to be able to see and understand what it is they will get in their rivers and lakes and for what costs.

Chapter 7; Summary of Plan Impacts: The Report (page 157) says "a decision between Plans A-II and B must be made immediately..." It seems to us there are some decisions to be made before we get to that one. Referring to Table 17, page 113, we see that Plan 1 to level 1 costs \$103 million average annually for municipal treatment. We do not know the equivalent cost of the N.E. Ohio Plan but perhaps it is \$70 million, and that is at least double our present cost level. Thus we have a sales job to get people to level 1. The "secondary

Colonel Robert L. Moore
June 4, 1973
Page 3

treatment" criteria recently released by the Federal EPA will add to this burden since it will be taken as prima facie evidence that things are pretty much O.K. now.

Then we more than double the cost in order to treat stormwater (\$123 million) to \$226 million per year total municipal and stormwater and we are approaching costs seven times current levels.

Thus a decision about stormwater should be made prior to any decisions about going to level II, or perhaps even to go generally to level I. Our 1968 Cuyahoga study indicated the need to reduce nitrogenous loads in certain reaches but whether the trace ammonia of level I is required is not yet demonstrated.

As far as collection and treatment configuration is concerned we see no immediate need to decide between A and B. In fact, if pressed now, the decision would have to be A since there is no demonstration that land treatment here would be viable, and we could ill afford a series of gross blunders throughout the District. If, in fact, a land treatment scheme can be set up and operated successfully, there are several upper watershed systems that could use this technique in the future without having to decide generally between A and B configurations.

In this same section of Chapter 7 are shown annual average costs of the various plans. We feel that as explanatory figures, the numbers in Table 40 are not adequate. The problem is that we do not pay sewage rates on average annual costs discounted to present worth and then spread back over 50 years. We pay operating and maintenance costs year by year, and bonded indebtedness over 20 or 30 years starting in the year the equipment goes on-stream. In the example you kindly worked out for me, the operating and maintenance cost increases 5.7 times from 1972 to 2020 and 4.5 times from 1972 to 1990. The sewer rate to support this would have to increase in proportion. This is what people are interested in, not the average, which is about the 1985 cost and but 55% of the final cost.

The Study is comparing the plans and we do not fault the system used for such a comparison but it is really the only place in the Study costs are shown for the final four plans and for the reasons given above it is not too enlightening.

Chapter 8; Preference Sets: On page 174 the Study says taxpayers will finance 25% of the capital cost and 100% of the operating and maintenance cost. Actually users will pay in their rates for 25% of the capital and 100% of the operating cost. Taxpayers will finance the other 75% of the capital via Federal taxes.

On page 175, it is said that by choosing Plan A to level I we are foregoing the opportunity (1) "to maximize retardation of eutrophication in Lake Erie," yet the phosphorous effluent on Table I and II (pages 22 and 24) is the same for level I and II; (2) "to maximize the enhancement of water based recreation, sport and commercial fishing..." yet no justification or support

Colonel Robert L. Moore

June 4, 1973

Page 4

is demonstrated in the Study for this and, in fact, Plan C might well cause added erosion and sediment discharge; and (3) "to recycle...other potential resources," yet none are discussed in the Study, except sludge the use of which is independent of treatment level.

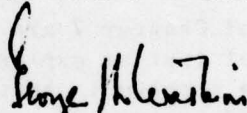
This is obviously not a comprehensive treatment. It also, almost by necessity, tends to be critical. The fact is that the Study has put together in a short time span a wealth of detail and has examined methods and costs to do certain operations which we have not heretofore been able to consider in our work in the District. For this we are most appreciative.

We should also like to acknowledge that you and your staff have been as responsive to our comments and requests as your own constraints permitted, and this we also appreciate.

We plan to continue our examination of the Summary Report and its appendices and will continue to try our best to work with you to make this effort as productive as possible for the people of the Three Rivers Watershed District.

Sincerely,

THREE RIVERS WATERSHED DISTRICT



George H. Watkins
Secretary-Treasurer

GHW:kep

cc: Dr. Ira L. Whitman
Mr. Barry Pritchard
TRWD Directors

August 8, 1973

Mr. Donald Liddell, Chief
Planning Division
Buffalo District Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207



John J. Gilligan
Governor
Dr. Ira L. Whitman
Director

Dear Mr. Liddell:

As per the request from Art Woldorf, I am enclosing herewith the statement by Dr. Ira L. Whitman to be included in the Three River Water Shed Report.

Sincerely,

A handwritten signature in cursive script, appearing to read "Seif Amragy".

Seif Amragy
Planning Division

SA:lsr

enclosure Handwritten initials, possibly "SA", written in cursive script.



August 8, 1973

STATEMENT

by

DR. IRA L. WHITMAN, DIRECTOR

representing

The Ohio Environmental Protection Agency
The Ohio Department of Natural Resources

regarding the

Wastewater Management Study
For Cleveland-Akron and the
Three Rivers Watershed Areas

I appreciate the opportunity to comment on the Wastewater Management Study as it may affect the future of the resources and environmental quality of the State of Ohio. The Ohio Department of Natural Resources and the Ohio Environmental Protection Agency have cooperatively evaluated concepts proposed in this important report and my statement is intended to represent the joint conclusions of both departments.

In viewing the wastewater study in its entirety, we feel it is an unusually useful and well prepared report. We will make immediate use of the information and conclusions presented during the perpetual updating and improvement of required basin and metropolitan water quality plans and in the formulation of sorely needed strip mine reclamation plans. Let me assure both the Corps and the Congress that this study will not be placed on the shelf and forgotten. The relevance and usefulness of the report was

greatly enhanced by the truly outstanding efforts by Colonel Moore and his staff to work in a close and sincere partnership with counterpart planners in state government. We thank Colonel Moore for this dynamic relationship and urge that other Corps Districts and Federal agencies emulate his example.

Despite my enthusiasm, however, it should not be assumed that we feel that all the relevant water quality questions have been answered.

In reviewing any wastewater management plan, and especially one of this magnitude and importance, the Ohio EPA must be constantly aware of the plan's relationship to Public Law 92-500, passed October 1972, and to our national problems of energy resources. This plan considers both of these factors in making its final recommendations. The policy of the State of Ohio is to pursue the goal of Public Law 92-500, that is the elimination of the discharge of pollutants to the navigable waters by 1985, by making optimum use of all the resources available to us and minimizing waste.

The plan proposes four alternative strategies for wastewater management and requests that the state make the final plan recommendation. This is consistent with water quality planning requirements of the Federal EPA, and with the desires of the state.

The State of Ohio will consider Alternates A₁, A₂ and B for recommendations after receiving comments from the public and consultations with the U. S. Environmental Protection Agency. At this time the State of Ohio will not consider Alternative C, that of the transport of wastewater for land treatment in North Central Ohio, as one of the viable alternatives, unless the public in the Three Rivers Watershed area and the North Central area requests the state to consider it among the alternatives.

We are all aware that the most widely discussed aspects of the Wastewater Management Study are its proposals for land disposal of treated sewage. There is nothing new, of course, in this concept. Spray disposal or broad irrigation of various industrial wastes has been practices for many years in Ohio with reasonable success. After reviewing the Corps study, I believe I would have little hesitation in reviewing proposals for land disposal of adequately treated wastes from communities of less than 100,000 population in the same way I would review any other waste treatment plant design. Every plant design must pass rigid examination by Ohio EPA for effectiveness, cost, safety, and operability. It is true, however, that there is a significant difference between land disposal of industrial wastes on small fields owned by the industry and land disposal of sanitary wastes on larger land areas. We would be interested in seeing this concept utilized by one or more communities of less than 100,000 population both in the Sandusky Watershed and the Three Rivers

Watershed. We would be particularly interested in innovative attempts to make positive economic utilization of the liquids being disposed of for improved agricultural returns and land reclamation. Special and detailed quality monitoring of the runoff, the soil, and the crops produced would be required. We are concerned about land disposal over large areas, where institutional and political problems would outweigh technical considerations. And, transfers of water from basin to basin need to be subjected to particularly harsh scrutiny - for hydrologic and social reasons alike.

Depositing sludge on land areas as a means of disposal is a generally worthwhile concept and this may be especially true for strip mined areas in Ohio where sludge may also aid in their restoration. The State of Ohio wishes to give support to proposals utilizing sludges for strip mined land reclamation and proposes that a first year trial of sludge disposal in Harrison County be pursued, based upon local acceptance. *

The Ohio EPA in consultation with interested parties designated a committee including OEPA, ODNR, Cleveland Regional Sewer District, Harrison County, Coshocton County, CSU and Case Western Reserve to study the transfer of Cleveland sludge to strip mined areas and submit these recommendations to the state. I will ask the committee to study the proposal to transfer Cleveland's sludge for one year to strip mined areas.

As we view water quality and resource planning needs in Northern Ohio, I feel that a vital area has thus far been omitted: that is the potential impact on Lake Erie of these and other water management alternatives. There is an urgent need for a comprehensive Lake Erie water quality management plan. Lake Erie is the recipient of the runoff and the wastes and the sediments from one of the most complex urban, industrial and agricultural areas in the world, yet we possess only a very limited knowledge of the dynamics of this vast body of water. To meet this need, we urge that Section 108 of PL 92-500 be immediately funded in the full amount authorized and that the study be conducted by the U. S. Army Corps of Engineers in a realistic partnership with Canada and the States of Ohio, Michigan, Pennsylvania and New York. Ohio stands ready and eager to participate in this study.

In conclusion, I again wish to thank the Corps for this useful report. I would also urge members of the public and their governmental agencies at all levels to communicate with us regarding the foregoing concepts. If we are to meet the high environmental goals set by the public, we must work together to utilize every available scientific technique. We look forward to a long and continued working relationship between the people of Ohio and the outstanding staff of the Buffalo District Office of the Corps of Engineers.

ATTACHMENT B

RESPONSES TO COMMENTS BY THE CITY OF AKRON

NCBED-PB

28 June 1973

David W. Zimmer, Service Director
City of Akron
Department of Public Service
203 Municipal Building
Akron, OH 44308

Dear Mr. Zimmer:

Thank you for your thorough, prompt review of our Draft Wastewater Management Report. By affording you and the other local officials affected by the study an opportunity to review its content, I am confident that the accuracy and usefulness of the final report by the State of Ohio as a planning tool will be enhanced.

Most of the comments regarding the Summary Report in your letter of 15 June can be addressed by textual modifications, and appropriate changes will be made. Paragraphs 2-6, and 8, in the inclosed annotated letter will be handled in that manner.

Your question in Paragraph 7 regarding the treatment of primary sludges may be resolved by referring to Figures 3A, 5A, and 7A of Appendix III, Part II. Those figures show the same treatment of primary sludges as for secondary biological sludges. The sludge volumes for disposal, referenced in paragraph 9, in Tables 27 and 32 of the Summary Report are consistent with the basic data presented on page A93 of Appendix III, Part II. The tonnages for disposal per million gallons of wastewater treated are $1.06 \times 0.64 = 0.68$ and $1.14 \times 0.64 = 0.73$ for Levels I and II, respectively.

Using the "Program for the Lower Cuyahoga River" report referred to in Paragraph 10 as a basis, our analysis indicates that the potential exists for compliance with the stream quality standards for dissolved oxygen in the navigation channel of the Cuyahoga River, if both the Akron and Cleveland southerly wastewater treatment plants meet Level II design criteria.

With regard to your review of Appendix IV, Industrial Wastewater, Parts I and II, in paragraphs 11 through 18 of your letter, I am

NCBED-PB
David W. Zimmer

dd/235

sorry that you cannot accept the statement of agreement of our data. The discrepancy probably lies in the approximations of pretreatment by our Contractor. Unfortunately, only generalized, aggregated data were provided to our Contractor on his visits to the offices of the Department. Of course, I am most anxious to rectify any misleading statements in our report, but the accuracy of our report is contingent upon the degree of data refinement provided. I hope that we may cooperatively correct any errors with regard to waste loads from Akron's industrial complex.

Colonel Moore has authorized our industrial wastewater contractor, AWARE, to contact Mr. Lou DeBevec, our previous contact in Akron, to discuss the necessary report revisions to insure its accuracy and to obtain the refined data necessary to achieve that end.

I hope that the final report can be acceptable to you and all other local officials, and I solicit your assistance in improving its accuracy.

Very truly yours,

1 Incl
as stated

CHARLES T. MYERS III
Major, Corps of Engineers
Acting District Engineer

CF:
✓NCBED-PM

ASSOCIATED WATER AND AIR RESOURCES ENGINEERS, INC.
Consulting Engineers

2907 12th Avenue South
Nashville, Tennessee 37204
(615) 297-3549

August 2, 1973

Colonel Robert L. Moore
District Engineer
Buffalo District Corps of Engineers
1776 Niagara St.
Buffalo, New York 14207

Dear Col. Moore:

In response to reviews of the industrial waste sections of the Wastewater Management Study, I have revised some sections of our report and wish to advise you of the changes involved. Most changes were textual modifications which are of minor impact. None of the revisions altered the final conclusions and cost estimates of the study.

In response to the review of the Wastewater Management Study by the City of Akron personnel, I have contacted Mr. Lew Debevec and discussed these comments at length with him. In these conversations I emphasized that many of the City of Akron comments referred to information which was not available to us during the course of the investigation. Additionally I mentioned that the time and opportunity for review of this work had been provided by the Corps of Engineers and that modifications of the study results would be made where merited. At the outset of this study a major complaint of Mr. Debevec's was that provisions for review had not been made in past studies concerning the Akron area.

As a result of these comments I have revised certain sections of our report to reflect additional information which is now available. This information was obtained from recent City of Akron wastewater analyses and from an EPA study of the rubber products industry which has not yet been published.

Treatment designs for the rubber industry were reviewed with Mr. Debevec with respect to changes in estimated waste loads from this industry and the objectives of the design sequences developed for this investigation. Appropriate modifications were made. Originally some confusion existed because the present EPA study of the rubber industry uses Level I and II treatment levels which have quite different designations from the ones used in the Wastewater Management Study.

Col. Robert L. Moore
Page 2
August 2, 1973

Specific changes which were made include the following:

1. Raw waste loads for rubber products plants were modified in accordance with data collected in the present EPA study obtained by Mr. Debevec.
2. Discussions of wastewaters from the rubber industry were revised to clarify the inclusion of latex wastes in this section.
3. Metals loads estimated for the Akron area were revised downward based on analyses of the total municipal waste flow made by the City of Akron during 1972. These concentrations have decreased significantly in the last five years according to City of Akron data.
4. A typographical error was corrected which attributed 9.9 lb/day of silver to the City of Akron. The correct quantity is 0.9 lb/day.

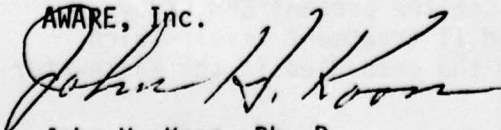
In addition to these changes several other revisions have been made to reflect comments made by the Office of the Chief of Engineers. The major comments which were addressed included:

1. Clarification was made regarding water quality standards used in the study and the relationship of these standards to the EPA industrial effluent guidelines.
2. Rationale for the costing of demineralization processes was revised to reflect the 500 mg/l Level II discharge limit.
3. Costs for cooling towers were revised to reflect costs incurred by the power industry for equivalent treatment.
4. A brief explanation of present worth costs was included.

If you have questions regarding these changes, do not hesitate to contact me.

Sincerely yours,

AWARE, Inc.



John H. Koon, Ph. D.
Senior Engineer

JHK/cc

KENT STATE
UNIVERSITY

KENT, OHIO 44242

CENTER FOR URBAN REGIONALISM
(216) 672-2232

July 18, 1973

Col. Robert L. Moore
District Engineer
Corps of Engineers, Buffalo
1776 Niagara Street
Buffalo, New York 14207

Dear Col. Moore:

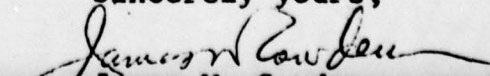
With reference to your letter of July 9th, concerning the discrepancies pointed out by the City of Akron Department of Public Service, I have discussed the several questions with Dr. Olive. We have agreed to several amendments to the report which can be reflected in your Summary.

With regard to the statement that the river is adversely affected by waste sludges from the Akron water plant, Dr. Olive indicates that according to actual testing, the situation, though improved, has not been corrected 100 per cent. We will therefore correct our current page D-13, the next to last line, to read: (2) limited waste leakage from the Akron water treatment plant".

With regard to the Cuyahoga River Chart, Page D-22, Table 3, we will make the following changes: Change item No. 3 under dissolved oxygen from + (plus) to - (minus); Change item No. 2 to include an asterisk, and at the bottom of the chart add this footnote - *Temperature satisfactory except for a short distance below the power plant.

The above corrections refer to the remaining two paragraphs which refer to discrepancies between text and chart. Dr. Olive feels that the temperature is acceptable in this stretch of the river except for a distance of perhaps a $\frac{1}{4}$ (quarter) mile below the plant. The second correction was perhaps a typographical error, since the particular question had been discussed. There are certain anomalies in the oxygen content of that area of the river, but the overall negative content is correct.

Sincerely yours,


James W. Cowden